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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/590,340	09/19/2008	Toshiro Oda	4852.91173	6997

24978 7590 12/01/2011

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EXAMINER	
YANG, JIE	

ART UNIT	PAPER NUMBER
1733	

MAIL DATE	DELIVERY MODE
12/01/2011	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/590,340	ODA, TOSHIRO	
	Examiner	Art Unit	
	JIE YANG	1733	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *16 October 2011*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ An election was made by the applicant in response to a restriction requirement set forth during the interview on _____; the restriction requirement and election have been incorporated into this action.

4)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

5)☒ Claim(s) *1-15* is/are pending in the application.

5a) Of the above claim(s) *1-5 and 9-15* is/are withdrawn from consideration.

6)☐ Claim(s) _____ is/are allowed.

7)☒ Claim(s) *6-8* is/are rejected.

8)☐ Claim(s) _____ is/are objected to.

9)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

10)☐ The specification is objected to by the Examiner.

11)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

12)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claims 1-5 and 9-15 are withdrawn as non-elected claims; Specification and claims 6-8 have been amended; and Claims 6-8 remain for examination, wherein claims 6 and 7 are independent claims.

Status of the Previous Rejection

Previous rejection of claims 6-8 under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention are partially withdrawn in view of the Applicant's amendment/remarks filed on 10/16/2011.

Previous rejection of claims 6-8 under 35 U.S.C. 103(a) as being unpatentable over Lyon (US 3,055,104, hereafter US'104) in view of Murata et al (JP 04063247A with English abstract, hereafter JP'247) is withdrawn in view of the Applicant's amendment/remarks filed on 10/16/2011.

However, in view of the Applicant's amendment and the newly found reference, a new ground(s) of rejection is made as following.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 6-8 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which

applicant regards as the invention. A broad range or limitation together with a narrow range or limitation that falls within the broad range or limitation (in the same claim) is considered indefinite, since the resulting claim does not clearly set forth the metes and bounds of the patent protection desired. See MPEP § 2173.05(c). Note the explanation given by the Board of Patent Appeals and Interferences in *Ex parte Wu*, 10 USPQ2d 2031, 2033 (Bd. Pat. App. & Inter. 1989), as to where broad language is followed by "such as" and then narrow language. The Board stated that this can render a claim indefinite by raising a question or doubt as to whether the feature introduced by such language is (a) merely exemplary of the remainder of the claim, and therefore not required, or (b) a required feature of the claims. Note also, for example, the decisions of *Ex parte Steigewald*, 131 USPQ 74 (Bd. App. 1961); *Ex parte Hall*, 83 USPQ 38 (Bd. App. 1948); and *Ex parte Hasche*, 86 USPQ 481 (Bd. App. 1949). In the present instance, claims 6-8 recites the broad recitation “a master alloy”, and the claim also recites “a high silicon stainless steel” which is the narrower statement of the range/limitation. The Applicant has not provided evidence to be able to manufacture a high silicon stainless steel from any master alloy (a master alloy may not even necessary to be a ferrous alloy). The Applicant is suggested to delete the "master alloy" limitations in the instant claims because it is contrary to “the silicon stainless steel” as recited in the instant claims.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 6-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hirai et al (JP 06093388A with English abstract and machine translation, hereafter JP'388) in view of Murata et al (JP 04063247A with English abstract, hereafter JP'247).

Regarding claims 6-8, JP'388 teaches a process to inexpensively produce a high Si stainless steel by hot-forging (Abstract of JP'388), which reads on forging a silicon stainless steel with an impact load or a static load as recited in the instant claims. JP'388 teaches including about 5.0-8.0wt%Si in the alloy, which overlapping the claimed 3.5-7.0wt%Si as recited in the instant claims, which is a prima facie case of obviousness. SEE MPEP 2144.05 I. It would have been obvious to one of ordinary skill in the art at the time the invention was made to select a steel alloy with the claimed Si range from the disclosure of JP'388 because JP'388 discloses the same utility throughout the disclosed ranges. JP'388 teaches forging at a temperature region ≥ 900°C and finish forging temperature ≥ 700°C (Abstract of JP'388) and more specifically heating to 1050 to 1150°C (Paragraph [0010] of JP'388), which overlapping the

heating temperature range of 1100°C as recited in the instant claims. The finish forging temperature ≥ 700°C taught by JP'388 reads on the limitation of dropping the temperature to 950°C or below and not so low as to break the silicon stainless steel as recited in the instant claims because JP'388 further teaches to avoid crack by control the finish forging temperature (Paragraph [0021] of JP'388). Regarding the limitation of mainly grain size of 15 μm or less as recited in the instant claims, which is recognized as a microstructure of forged Si-stainless steel depending on the material composition and working processes. As discussed above, JP'388 teaches applying the similar silicon stainless steel by the same forging operation under the similar working conditions as recited in the instant invention and JP'388 further teaches controlling the forging temperature in re-crystallization temperature region (Paragraphs [0020]-[0021] of JP'388). Therefore, the similar microstructure, for example mainly grain size of 15 μm or less as recited in the instant claims would be highly expected in the forged Si stainless steel proceeded by the process of JP'388. MPEP 2112.01. This position is further evidenced by JP'247. JP'247 teaches a process for manufacture a high strength and high ductility stainless steel with high Si (1.0-7.0wt%Si) content (Abstract of JP'247). JP'247

teaches to control the grain size by hot working operation and further heat treatment to obtain fine grains of less or equal to 1μm (Abstract and Fig.2 of JP'247), which is within the claimed grain size range of 15μm or less as recited in the instant claims. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to apply the hot working operation and further heat treatment as demonstrated by JP'247 in the process of JP'388 in order to obtain the desired high ductility stainless steel (Abstract of JP'247). The Examiner notes that there is no limitation to exclude further heat treatments in the instant claims.

Still regarding claim 7, JP'388 teaches a temperature range for forging: forging at a temperature region ≥ 900°C and finish forging temperature ≥ 700°C (Abstract of JP'388). It is well known in the art to perform more than one impact load or static load to finish forging in a forging temperature range. This position is further evidenced by JP'247. JP'247 provides different secondary deformations for high-Si stainless steel under different operation temperatures to obtain different forging results (Table 2 and Fig.1-2 of J'247). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to apply the second deformation

operation as demonstrated by JP'247 in the process of JP'388 in order to obtain the forged steel with the desired properties (Table 2 and Fig.1-2 of JP'247).

Still regarding claim 8, JP'388 teaches forging in a temperature range (Abstract of JP'388) and JP'388 does not teach heating during forging, therefore a lowest surface temperature of each second loading application step is lower than a lowest surface temperature for a previous step as recited in the instant claim would be highly expected in the process of JP'388. MPEP 2112.01. JP'247 provides evidence to show obtaining smaller grain size with forging at lower temperature range (Fig.2 of JP'247). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to control the secondary forging temperature according to the desired grain size as demonstrated by JP'247 in the process of JP'388 in order to obtain the forged steel with the desired properties (Table 2 and Fig.1-2 of JP'247).

Response to Arguments

Applicant's arguments with respect to claims 6-8 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jie Yang whose telephone number is 571-2701884. The examiner can normally be reached on IFP.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Roy King can be reached on 571-2721244. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/ Jie Yang/
Patent Examiner, Art Unit 1733